

Your response

Question	Your response
<p>Question 1: Do you agree with our analysis of the case for regulatory intervention and our proposal to license satellite gateways to access 28 GHz spectrum in portions of the band not currently available for satellite gateways? If not, please provide reasons/evidence for your response.</p>	<p>Telesat strongly supports Ofcom’s proposal to open access to 28 GHz not currently available for satellite gateway use as the 28 GHz band is one of the core bands for satellite uplinks (Earth to Space transmission).</p> <p>With respect to the mechanism for enabling access to 28 GHz for satellite gateways, Telesat has some concerns regarding Ofcom’s proposal to allow comments from Spectrum Access Licensees also for their planned deployments. As Ofcom correctly identified, there is the risk that Spectrum Access Licensees on the basis of their planned deployments, could deny new gateway spectrum access requests, and aim at bilateral commercial agreements with satellite operators. This in fact contradicts Ofcom’s approach, as referenced in 4.21, that satellite operators would not need to rely on commercial negotiations to gain access to spectrum. In order to minimize that risk, Telesat would respectfully propose that Spectrum Access Licensees notify regularly to Ofcom of their existing deployments as well as their, for instance, 12-months planned ones. While Telesat understands that there might be some confidentiality issues sharing this information in the public domain, we also note that some European countries have taken some steps towards this direction¹. In any case, Telesat is of the view that at least Ofcom should have this information and be able to share it, as appropriate, with satellite operators that express their interest to apply for a satellite gateway in the UK. This would streamline the coordination process and provide regulatory certainty to satellite operators as they will be able to plan their gateways avoiding affecting current and planned deployments of Spectrum Access Licensees.</p>
<p>Question 2: If we decide to proceed with this proposal to license satellite gateways to access 28 GHz spectrum in portions of the band not currently available for satellite gateways, do you agree with our proposal not to adjust Spectrum Access licence fees to reflect locations where we authorise</p>	<p>N/A</p>

¹ [Cartoradio - ANFR](#)

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<p>future satellite gateways? If not, please provide reasons/evidence for your response.</p>	
<p>Question 3: Do you have any further views / comments on our proposal to license satellite gateways to access 28 GHz spectrum in portions of the band not currently available for satellite gateways?</p>	<p>Telesat notes Ofcom’s intention to review the pricing of NGSO satellite earth station licenses in order to reflect the “opportunity cost” that issuing a license might have on the ability to issue other licenses. While Telesat understands that, currently, GSO license fees intend to reflect the opportunity cost of issuing fixed links licenses in the shared bands, the opportunity impact of NGSO gateways will be less significant, as they can normally operate with higher minimum elevation angles and with lower eirp values (typically the antennas are smaller than for GSO gateways in the same frequency band). Furthermore, taking into account the fact that an increasing number of NGSO systems will implement Optical Inter-Satellite Links – a feature already implemented by Telesat Lightspeed and which allows constellations to make the most efficient use of Gateway earth stations by limiting their numbers – Telesat is of the view that there would be a relatively low risk of scarcity of sites in the UK. This is in line with Ofcom’s statement in 4.13, that a limited number of NGSO gateways is anticipated with small coordination areas required to coexist with other spectrum users. Furthermore, the current approach to NGSO gateway earth station licensing has the benefit of being simple and straightforward. Overall, Telesat sees no need to change it on the principle of “opportunity cost”.</p>
<p>Question 4: Have we correctly identified the possible uses of the returned spectrum? If not, what other potential uses should we consider?</p>	<p>Telesat agrees with Ofcom’s initial assessment regarding the potential allocation of the returned spectrum on a primary basis either to point to point fixed links or to ubiquitous land satellite terminals, as coexistence between to these two services can be difficult. In any case as Ofcom correctly identified, satellite gateways can coexist and be coordinated with fixed links. This is also true for fixed land terminals. Telesat also notes that aeronautical and maritime ESIM can use the whole 28GHz band, with sharing conditions where needed and welcomes Ofcom’s decision</p>

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	<p>to consider spectrum access to for these types of terminals in a following consultation also with reference to WRC-23 1.16 successful outcome.</p>
<p>Question 5: As a satellite operator, are you currently constrained by the amount of spectrum available in the 28 GHz uplink and 18 GHz downlink to provide your planned and or existing satellite services to UK consumers and citizens? If so, please explain what constraints exist in each band.</p>	<p>The 28 GHz band is extensively used worldwide and NGSO FSS satellite systems operating or planning to operate, including Telesat Lightspeed, rely on this band to deliver a wide range of satellite broadband applications in urban, suburban and rural locations alike, and also to offer services via earth stations in motion (ESIM), providing broadband for air and sea vessels as well as land-based users on vehicles, buses, and trains.</p> <p>Notably, the new Telesat LEO system, Telesat Lightspeed, will use the 27.5-29.1 GHz and 29.5-30.0 GHz bands in the Earth-to-space direction for both user terminals and gateway earth stations. However, in the UK, Telesat Lightspeed is currently restricted to use only the parts of 27.5-27.8185 GHz, 28.4545-28.8265 GHz and 29.5-30 GHz for its user terminals.</p> <p>Telesat is of the view that the existing fragmentation in the 28GHz band has an adverse impact on connectivity. Contiguous spectrum for both satellite gateways and user terminals would facilitate the provision of advanced satellite services for UK customers, achieving higher throughput.</p>
<p>Question 6: Do you agree with our initial view that alternative use of the returned spectrum would be an allocation decision for either point-to-point fixed links or land-based satellite terminal use because it is unlikely both services can share and auctioning the spectrum is unlikely to secure optimal use? If not, please provide evidence to support your response.</p>	<p>As already mentioned in Question 4, Telesat agrees that the returned spectrum should be allocated on a primary basis to either terrestrial fixed links or uncoordinated land satellite terminals. Telesat strongly supports Ofcom approach not auctioning the spectrum as this will not ensure optimal use. Satellite spectrum in the Ka band can be naturally shared among multiple satellite operators and, therefore, assignment on an exclusive basis would artificially limit the number of satellite operators being able to access this key portion of the spectrum and contradict the basic and essential principle of efficient spectrum use, also imbedded in the ITU constitution.</p> <p>In addition, this spectrum can also be shared among terrestrial fixed links operators. An auction could favour the terrestrial operators who typically have larger financial</p>

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	<p>means and could create “super providers/spectrum holders” controlling access to the spectrum, and therefore the market, for other entities, putting other operators, including satellite ones, in a position of unnecessary dependency.</p>
<p>Question 7: Do you agree with our initial view to make 112 MHz at 28.8365 – 28.9485 GHz available for land-based satellite terminal use, 2 x 112 MHz for point-to-point fixed links at 27.9405 - 28.0525 GHz and 28.9485 - 29.0605 GHz and defer allocating the remaining 112 MHz of spectrum? If not, what alternative suggestions do you have?</p>	<p>As Ofcom correctly identifies in 2.17, the 28 GHz band is an important band for FSS for both GSO and NGSO satellite networks/systems and has a primary allocation to the FSS globally in the Radio Regulations and in the UK.</p> <p>Telesat is of the view that the return of the unused Arqiva’s spectrum to be re-authorized by Ofcom is greatly valuable to the satellite industry. The evidenced growing demand for satellite connectivity on the move and the recent developments in relation to Arqiva’s 28 GHz released spectrum clearly show that there is stronger demand for satellite services than for terrestrial links in this band.</p> <p>Telesat understands that Ofcom’s preferred approach is option 1 which would also harmonize the spectrum used for satellite uncoordinated earth stations and fixed services as referenced in ECC/DEC/(05)01. However, Telesat notes the limited density of use for FS in most countries based on ECC Report 173, in spite of the spectrum being available for around 20 years, while the increased use of the 28GHz band from satellites, also mentioned above and in question 5, is apparent. Based on the limited use by FS, a possible revision of ECC/DEC/(05)01 may be even worth considering. Therefore, Telesat would respectfully disagree with Ofcom’s decision to allocate only 112 MHz out of the 448MHz released spectrum for land-based satellite terminal use. Instead, Telesat encourages Ofcom to allocate the full amount of released spectrum (2*224 MHz) as indicated in Option 4 of the Consultation.</p> <p>Regarding Ofcom’s comment that, if option 4 is selected, <i>“more spectrum is made available for satellite terminals in the UK than in any other region”</i>, Telesat would respectfully note that there are also other countries that have already acknowledged the importance of 28GHz band for</p>

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	<p>satellite and have allocated satellite as the primary user (e.g Saudi Arabia², Mexico)</p> <p>Telesat notes Ofcom's concerns that the full amount of spectrum (2*224MHz) in the 28 GHz band may not be usable because the amount of the paired downlink band of 17.7-19.7 GHz could be constrained due to sharing with fixed links.</p> <p>However, currently in the UK the amount of spectrum that can be used by FSS is limited in the uplink, compared to that of the downlink (1.238 GHz in the uplink compared to 2.9 GHz in the downlink). Even with the allocation of the full amount of Arqiva's released spectrum to satellite terminals, the total amount of spectrum in the uplink would be 1.686 GHz- still well below the total available spectrum in the downlink and also below the 2 GHz in the 17.7-19.7 GHz. This observation may alleviate Ofcom concerns as described above.</p> <p>In any case, Telesat is of the view that there is no issue of sharing between fixed terrestrial services and satellite services in the 17.7-19.7 GHz frequency bands as fixed satellite terminals can be individually coordinated and ubiquitous/mobile ones can operate on a non-protection basis (the probability of interference to ESIM is in any case low, also as they normally operate with relatively high elevation angles)</p> <p>Telesat agrees with Ofcom that in a handful of countries outside the European region restrictions in the 28 GHz band apply since the spectrum below 28.35 GHz is allocated to 5G.</p> <p>However, it is important to note that Telesat Lightspeed (and more in general the latest generation of satellite systems) can dynamically assign capacity to locations by varying the number and size of the satellite spot beams, as well as the amount of spectrum and power allocated to each beam in order to comply with any regulatory restrictions of each country. Therefore, even if in some countries Telesat Lightspeed would be restricted to operate in some parts of the 28 GHz, it could still take advantage of the full amount of spectrum in the 28 GHz in the UK.</p>

² <https://www.cst.gov.sa/en/ntn/Documents/SpectrumOutlook.pdf>

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<p>Question 8: Do you agree with our assessment of how the returned spectrum may be authorised for fixed links and GSO and NGSO land-based satellite terminals? If not, please provide evidence to support your response.</p>	<p>In relation to Ofcom’s proposal to authorise NGSO land-based satellite terminals under the ESN licence and to license exempt GSO ones, Telesat is of the view since the objective for both types of services is the same, authorization approach should be the same to encourage innovation, while ensuring full competition for the benefit of end consumers and citizens in UK.</p>
<p>Question 9: Do you have a view on demand for point-to-point fixed links in Northern Ireland and London in the frequency range 28.1925 – 28.3045 GHz paired with 29.2005 – 29.3125 GHz and our proposed approach that, if we were to decide to make this spectrum available for fixed links, would be to authorise this as Ofcom managed spectrum licensed on a first come first served basis?</p>	<p>Telesat disagrees with Ofcom’s approach to allocate the frequency ranges of 28.1925 – 28.3045 GHz paired with 29.2005 – 29.3125 GHz in London and Northern Ireland to point to point fixed links. As discussed above in Q7, and considering also satellite operators’ responses to “Expanding spectrum access for satellite gateways in the 28 GHz band” Consultation³, there is a pronounced and undeniable demand for the 28 GHz for both gateways and user terminals. On the other hand, based on the lack of replies from terrestrial operators in the “Arqiva’s 28GHz Spectrum Access License”⁴Consultation, there seems to be minimal interest for the 28 GHz from alternative service providers, including fixed service providers. Therefore, Telesat urges Ofcom to open these frequencies for both gateways and uncoordinated satellite terminal operations whilst restricting access to these frequencies by non-satellite services.</p>
<p>Question 10: Do you have further views / comments that you wish to make in respect of this consultation?</p>	<p>N/A</p>

Please complete this form in full and return to 28ghz@ofcom.org.uk.

³ <https://www.ofcom.org.uk/consultations-and-statements/category-2/expanding-spectrum-access-for-satellite-gateways-in-the-28-ghz-band?showall=1>

⁴ <https://www.ofcom.org.uk/consultations-and-statements/category-3/consultation-arqivas-28-ghz-spectrum-access-licence>